

CLAIMS

1. A method for managing the feed of a new coil into a continuous inline processing plant of a band-type product, said plant being supplied with successive bands and including means for controlling the continuous running of the band (M) successively into an inlet section (1), an upstream accumulator (6), a processing section (7), a downstream section and an outlet section, the connection of the tail of a first coil (11) when completely unwound with the head of a next coil (11) being carried out in the inlet section of the plant in two successive stage cycles, respectively a first preparation cycle for preparing the ends, respectively tail and head ends of both bands, for the junction thereof and a second junction cycle for joining both facing edges of said ends,  
15 a method wherein the running of the band is stopped or, at least, slowed down in the inlet section (1) for a period of time necessary to carry out all the connection operations, and the processing section (7) is supplied, during the stoppage time, with a band length set aside beforehand in the upstream accumulator (6) for carrying on the process at a normal running speed,  
20 characterised in that joining the facing edges of the ends of both bands (M, M') is performed in at least two portions of the inlet section (1), respectively a first portion (3) and a second portion (4), between which is located an intermediate accumulator (5) for setting aside a variable band length, and that the time period necessary to perform all the connection operations of both bands (M, M') is divided into at least two time periods (T<sub>1</sub>, T<sub>3</sub>), respectively a first time period (T<sub>1</sub>) corresponding to the first preparation cycle and to a first phase of the second junction cycle of the facing edges of both bands (M, M'), and a second time period (T<sub>3</sub>) corresponding to a second phase of the second junction cycle, said both time periods (T<sub>1</sub>, T<sub>3</sub>) being separate by a time interval (T<sub>2</sub>) of variable duration corresponding to the running of the band length set aside in the intermediate accumulator (5).  
25  
30  
35
2. A method according to claim 1, wherein the junction of both bands (M, M') is performed by welding in a welding machine (41), the

second junction cycle of the facing edges of the ends of both bands including a welding operation followed by at least one finishing operation of the welded junction, characterised in that the welding machine (41) is located in the first portion (3) of the inlet section (1), the welding operation being processed at the end of the first time period (T1) in a first phase of the second junction cycle, and that the tail of the first band (M) and its welded junction with the head of the next band (M') is then passed in the intermediate accumulator (5), the running being stopped again in the second portion (4) of the inlet section (1) to perform at least one finishing operation during a second time period (T3) of the second junction cycle.

3. A method according to claim 1, wherein the junction of both bands (M, M') is performed by welding in a welding machine (41), the second junction cycle of the facing edges of the ends of both bands including a welding operation followed by at least one finishing operation of the welded junction, characterised in that the welding machine (41) is located in the second portion (4) of the inlet section (1), that, in a first phase of the second junction cycle, the tail of the first band (M) is temporarily joined with the head of the next band (M') at the end of the first time period (T1) of the general connection process, and that the running of the band is then resumed to bring said temporary junction into the second portion (4) of the inlet section (1) by passing through the intermediate accumulator (5), the running being stopped again during the second time period (T3) of the general connection process in order to perform the welding operation itself and at least one finishing operation in a second phase of the second junction cycle.

4. A method according to any of the previous claims, characterised in that, before completion of the unwinding of the first coil (11), band lengths are set aside in the upstream accumulator (6) and in the intermediate accumulator (5), corresponding to the maximum capacity thereof.

5. A method according to claim 4, characterised in that, during the first time period (T1) of the general connection process, the processing section (7) is supplied at normal speed from the upstream accumulator (6), and that, at the same time, the passage, into the upstream

accumulator (6) from the intermediate accumulator (5), of a band length able to replace at least one portion of the length passing into the processing section (7) is controlled.

6. A method according to any of the previous claims, characterised in that, during the second time period ( $T_3$ ) of the general connection process, the processing section (7) is supplied at normal speed from the upstream accumulator (6), and that the running, through the first portion (3) of the inlet section (1), of the band length necessary for restoring the intermediate accumulator (5) to the maximum capacity thereof, is controlled.

7. A method according to one of the claims 5 to 6, characterised in that the intermediate accumulator (5) has a capacity corresponding at least to the band length running through the processing section (7) at the normal speed for the duration ( $T_1$ ) of the first time period of the general connection process.

8. A method according to claim 7, characterised in that, once the junction has been stopped in the second portion (4) of the inlet section (1), the unwinding speed of the new coil is increased for filling, at least partially, the intermediate accumulator (5), so that, according to the length of the new coil (11'), the tail thereof can be stopped in the first portion (3) of the inlet section (1) for the junction therof with the head of a third coil, after setting aside a band length corresponding at least to the first time period ( $T_1$ ) of the general connection process.

9. A method according to one of the claims 5 to 8, characterised in that the upstream accumulator (6) has a capacity corresponding at least to the band length running through the processing section (7) at normal speed during the second time period ( $T_3$ ) of the general connection process.

10. A method according to one of the previous claims, characterised in that the filling rate of the intermediate accumulator (5) is managed relative to the length of each new coil (11') so as to restore the upstream accumulator (6) to the maximum capacity thereof after each time period of the general connection process.

11. A method according to one of the previous claims, characterised in that, at the end of the second time period of the general connection process, the welding spot is annealed.

12. A processing plant of a band-type product supplied with successive bands and including, in a continuous line, an inlet section (1) fitted with means for connecting, through successive steps, the tail of a coil (11) at the end of unwinding to the head of a new coil (11'), an upstream accumulator (6), a processing section (7), a downstream section and an outlet section fitted with means for discharging the coils once completely unwound, characterised in that the inlet section (1) is divided into at least two portions between which is located at least one intermediate accumulator (5), respectively a first portion (3) including at least preparation means (13, 32, 33) for preparing before joining the tail of a coil (11) when completely unwound and the head of a new coil (11'), and at least a second portion (4) including at least means (43) for finishing the welded junction, a welding tool (41) being placed in either of said both portions (3, 4) of the inlet section (1).

13. A processing plant according to claim 12, characterised in that the first portion (3) of the processing section (1) comprises at least means (13, 13') for preparing the tail and the head of two successive bands (M, M'), positioning means (31, 33) and a welding tool (41), the second portion (4) including at least means (43) for finishing the welded spot.

14. A processing plant according to claim 12, characterised in that the first portion (3) of the inlet section (1) comprises at least means (13, 13') for preparing the tail and the head of two successive bands (M, M') and means (31) for joining temporarily said tail and head, and that the second portion (4) of the inlet section (1) comprises at least one welding tool (41) associated with means (44, 45) for positioning and eliminating the temporary junction and means (43) for finishing the welded spot.

15. A processing plant according to one of the claims 12 to 14, characterised in that the second portion (4) of the inlet section (1) comprises means for annealing the welded spot.